

ABSTRACT

Sub A. Apparatus and methods for sensing one or more physical parameters at a remote location while minimizing or eliminating contact between reservoir fluids and the like at the remote location and the sensor used to sense the physical parameters. In one  
5 embodiment the apparatus isolates the sensor within a tube containing the sensor. Specifically, apparatus includes a tubing containing a communication cable and a sensor in communication with the cable, the sensor being located within the tubing proximate the remote location. A sealing device is configured to seal a section of the tubing containing the sensor from fluid flow within the tubing, the sealing device  
10 being configured to be actuated between a sealing state and a non-sealing state. The apparatus further includes a communication device in fluid communication with the remote location and the section of tubing containing the sensor. A control line is in communication with the sealing device and is configured to actuate the sealing device between the sealing state and the non-sealing state. In a second embodiment, the  
15 apparatus is configured to impose a barrier of a fluid between the sensor and the environment at the remote location. Specifically, the latter apparatus includes a first tubing containing a communication cable and a sensor in communication with the cable, the sensor being located within the tubing proximate the remote location. The apparatus further includes a second tubing having a first end in fluid communication  
20 with the first tubing proximate the sensor. A fluid barrier reservoir containing a barrier fluid is also provided, the fluid barrier having a first opening in fluid communication with a second end of the second tubing, and a second opening in fluid communication with the remote location. Methods for implementing and operating apparatus similar to the described apparatus are also provided for.